

Title (en)

QUBIT ASSEMBLY PREPARATION METHOD, QUBIT ASSEMBLY, QUANTUM CHIP, AND DEVICE

Title (de)

VERFAHREN ZUR HERSTELLUNG EINER QUBIT-ANORDNUNG, QUBIT-ANORDNUNG, QUANTENCHIP UND VORRICHTUNG

Title (fr)

PROCÉDÉ DE PRÉPARATION D'UN ENSEMBLE DE BITS QUANTIQUES, ENSEMBLE DE BITS QUANTIQUES, PUCE QUANTIQUE ET DISPOSITIF

Publication

**EP 4177975 A4 20231220 (EN)**

Application

**EP 21938135 A 20211206**

Priority

- CN 202111131811 A 20210926
- CN 2021135741 W 20211206

Abstract (en)

[origin: US2023105689A1] A qubit assembly preparation method includes preparing a waveguide film in two or more regions on a substrate spaced apart from each other. The method further includes preparing, by using a Dolan bridge photoresist structure, a qubit structure not connected to the waveguide film. The qubit structure includes a three-layer structure. The three-layer structure includes a first superconducting portion and a second superconducting portion intersecting with each other in a coverage region on the substrate. The method further includes removing the insulation layer on a first target region and a second target region of an upper surface of the superconducting portion. The method further includes evaporating a connection layer on the waveguide film, the qubit structure, and the substrate between the waveguide film and the qubit structure.

IPC 8 full level

**H10N 60/01** (2023.01); **H10N 60/12** (2023.01); **H10N 69/00** (2023.01); **G06N 10/40** (2022.01)

CPC (source: EP US)

**G06N 10/40** (2022.01 - US); **H10N 60/0912** (2023.02 - EP); **H10N 60/12** (2023.02 - EP); **H10N 69/00** (2023.02 - EP); **G06N 10/40** (2022.01 - EP)

Citation (search report)

- [AD] WO 2018106215 A1 20180614 - INTEL CORP [US]
- [A] WO 2019032115 A1 20190214 - INTEL CORP [US]
- [A] CN 113257988 A 20210813 - ALIBABA GROUP HOLDING LTD
- [A] CHENLU WANG ET AL: "Transmon qubit with relaxation time exceeding 0.5 milliseconds", ARXIV.ORG, CORNELL UNIVERSITY LIBRARY, 201 OLIN LIBRARY CORNELL UNIVERSITY ITHACA, NY 14853, 20 May 2021 (2021-05-20), XP081967284
- See also references of WO 2023045088A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

Designated validation state (EPC)

KH MA MD TN

DOCDB simple family (publication)

**US 2023105689 A1 20230406**; CN 115884665 A 20230331; EP 4177975 A1 20230510; EP 4177975 A4 20231220; WO 2023045088 A1 20230330

DOCDB simple family (application)

**US 202218078228 A 20221209**; CN 202111131811 A 20210926; CN 2021135741 W 20211206; EP 21938135 A 20211206